NOVEL AND CONVENTIONAL CARDIOVASCULAR RISK-FACTORS

P01

Gender Differences in Outcome

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Purpose: Gender differences are currently becoming increasingly recognized as an important prognostic factor in patients with atherosclerotic disease. We investigated gender-related differences in vascular outcome and mortality of asymptomatic patients with high grade internal carotid artery (ICA) stenosis. **Methods:** We enrolled 525 consecutive patients (325 males with a median age of 72 years; 200 females with a median age of 75 years, respectively) from a single center registry, who were initially treated conservatively with respect to a neurologically asymptomatic ≥70% ICA stenosis. Patients were followed for median 38 months (interquartile range 18 to 65) for major adverse cardio-, cerebral and peripheral vascular events (MACE: combined endpoint including myocardial infarction, stroke, [partial] limb amputation, and death), vascular and all-cause mortality. **Results:** Cumulative MACE-free survival rates in males and females at 1, 3 and 5 years were 83%, 65%, 48% versus 85%, 73%, 67% ($P = 0.004$), respectively. Adjusted hazard ratios for MACE, vascular and all-cause mortality for males were 1.96 ($P = 0.016$), 2.48 ($P < 0.001$), and 1.70 ($P = 0.007$) as compared to females, irrespective of age, vascular risk factors, comorbidities and the individual risk status estimated by the American Society of Anesthesiologists (ASA) score. **Conclusion:** Male patients with high grade carotid artery stenosis are at a considerably higher risk for poor outcome than their female counterparts. In particular, the risk for fatal vascular events is substantially increased in males.

P02

Gender Effects on Renal and Cardiovascular Outcomes

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End stage renal disease represents an important cardiovascular risk factor. This study aims to investigate the role of gender and NO-cGMP signaling on cardiovascular and renal changes in subtotally nephrectomized rats (SNX). Renal ablation induced hypertension in both female and male groups, with lower values of systolic blood pressure in females (141±25 mmHg) than in males (151±18 mmHg). In contrast, the degree of renal injury, as emerged from proteinuria, was more pronounced in females than in males (704±418 vs 455±308 mg/24h). At the individual level, proteinuria levels did not correlate with blood pressure values. SNX led to left ventricular hypertrophy (35.6±10 vs 22.6±7 mg/mm tibia length in female) and dilatation in both groups, with significant higher relative values of left ventricular mass in males. An increase in aorta lumen area and media thickness was also been observed in uremic rats. Renal compensatory hypertrophy occurred as well. An approximately two-fold increase in relative kidney weight was seen in both groups (52±12 vs 33±5 mg/mm tibia length in female, 81±20 vs 46±7 mg/mm tibia length in males, respectively, with significant differences between genders). SNX animals developed glomerulosclerosis and functional impairment, with no influence of gender. In this model of mild renal insufficiency prominent gender effects on the degree of hypertension, cardiac remodeling and proteinuria were found. Compared to SNX male rats, females showed less hypertension, ventricular hypertrophy and dilatation, but higher proteinuria indicating more renal injury. The results suggest that estrogens differently influence the progression of cardiovascular and renal diseases.

P03

Female Gender Is Associated with Increased Levels of Oxidized Low-Density Lipoprotein in a Healthy Elderly Population

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Background: Oxidized low-density lipoprotein (OxLDL) is suggested to play a pivotal role in atherosclerosis and its clinical manifestations. Risk factors for elevated levels of circulating OxLDL are not well established. The purpose of this study was to investigate the influence of traditional risk factors for cardiovascular disease on levels of OxLDL in a healthy elderly population. **Study Population:** 294 men and 137 post-menopausal women free of symtomatic cardiovascular disease, other established chronic diseases and without cardiovascular medications were studied. **Method:** OxLDL was measured by a sandwich ELISA utilizing a specific murine monoclonal antibody, mAb-4E6 (Mercodia AB, Uppsala, Sweden). **Results:** Levels of OxLDL were higher in healthy women compared to men. In a multiple regression analysis including well-known risk factors for cardiovascular disease (age, blood pressure, smoking, and traditional lipids/lipoproteins) we found that low-density lipoprotein, triglycerides and female gender were independently and positively associated to OxLDL whereas there was a negative independent association of HDL to OxLDL. The adjusted R^2 value was 0.301 suggesting that 30% of the variability in levels of OxLDL could be explained by this model. **Conclusion:** In a healthy elderly population female gender is associated with higher levels of circulating OxLDL.

PSYCHOSOCIAL FACTORS AND TRANSCULTURAL ASPECTS

P04

Psychosocial Stress in an Outpatient Rehabilitation Clinic: Gender Differences

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Psychosocial stress plays a central role in the development of physical ailments. Studies have shown significant gender effects before the manifestation of these ailments. Our study explores the type and extent of acute and chronic stress among male and female patients with chronic illnesses in outpatient rehabilitation clinics. It also provides normative data for outpatient rehabilitation for the measurement of acute stress using the analog scale "stress barometer" and

the Trierer Inventory for the Assessment of Chronic Stress. **Method:** Cross-sectional study using a self-administered questionnaire. **Instruments:** Trier Inventory for the Assessment of Chronic Stress (TICS), an analog scale "stress barometer" to measure acute stress. **Statistics:** Multivariate analysis of variance. **Participants:** 353 patients of an outpatient rehabilitation clinic (ZAR: Zentrum für Ambulante Rehabilitation) in Vienna, Austria with cardiovascular diseases and orthopedic illnesses. 58% of participants were male, 31% were currently employed. The mean age was 59.4 years. **Results:** 654 questionnaires were distributed, 509 returned, 353 complete data sets (response rate 77%). After correcting for the influence of age, multivariate analyses showed significant differences between men and women ($P < 0.001$), as well as between employed and retired patients ($P < 0.001$). In terms of chronic stress, female patients reported being more overworked ($P < 0.01$), experiencing more social stress ($P < 0.05$), feeling a stronger sense of insufficient support ($P < 0.05$), and having more chronic anxiety ($P < 0.001$). They also showed higher overall chronic stress screening scores than male patients ($P < 0.01$). Employed patients reported higher levels of acute stress ($P < 0.001$) and chronic stress ($P < 0.001$) than retired patients. While working men reported the highest levels of stress from pressure for success, working women were most burdened by social stress. For both sexes, chronic anxiety was the second most important source of stress. **Discussion:** Gender differences in type and extent of subjective stress can be found not only before the manifestation of illness, but also during rehabilitation. Psychological interventions aimed at helping patients cope with stress should take these differences into account.

P05

Influence of Gender-Related Differences in B-Type Natriuretic Peptide (BNP) Levels on Cardiovascular Response to Mild Psychomental Stress

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B-type natriuretic peptide has beneficial effects including a decrease in blood pressure and diminution of sympathetic nervous system activity. Studies suggest that women are less reactive to psychomental stress compared to men. Thus one may hypothesize that the cardioprotective characteristics of BNP are partly due to an inhibitory effect on stress reactions. The aim of the present study was to evaluate the influence of gender-related differences of BNP concentration on cardiovascular stress reaction. Hemodynamic and endocrine stress responses to a mental stressor (Stroop Task) were assessed in 60 healthy subjects (30 women, 30 men) stratified by sex and age (18–35 years, 36–55 years). As outcome variables blood pressure, stroke volume, heart rate, cardiac output, total peripheral resistance, BNP, adrenaline, and noradrenaline were taken at initial baseline, in response to stress and after a recovery phase. The Stroop Task elicited increases in blood pressure, heart rate, cardiac output, adrenaline, and noradrenaline. Consistently higher BNP concentrations were found in women, whereas adrenaline and blood pressure levels were higher in men. BNP concentration correlated negatively with adrenaline and blood pressure values, both at baseline and during stress. Results of this study indicate that the smaller cardiovascular stress reactions in women are due to their higher BNP and lower adrenaline levels.

P06

Quality of Life in Transsexuals in Austria and The Netherlands

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Transsexualism is considered to be the extreme end of the spectrum of gender identity disorders (GID) characterized by, among other things, a pursuit of sex reassignement surgery (SRS). In many countries, also in Austria and the Netherlands, transsexuals are now treated according to the Standards of Care of the Harry Benjamin International Gender Dysphoria Association. The Netherlands provide a legal basis, Austria only guidelines in the treatment process. This study examined the quality of life, the gender role identity (feminine, masculine, androgyne, indifferent), expectations regarding the treatment and the importance of male or female body parts in 87 transsexuals in the age between 17 and 78 (mean age 36 yrs), 35 male-to-female (MF) (mean age 40, 52 yrs) and 42 female-to-male (FM) transsexuals (mean age 31, 45 yrs). 35 transsexuals were treated in the Netherlands, 52 in Austria, 26 transsexuals were pre-hormonal, 26 pre-SRS and 35 post-SRS respectively. Satisfaction with, social support, partnership, sexuality and surgery outcomes and wishes for supplementary surgery or surgical corrections were also investigated in the post-SRS group. In this sample MF transsexuals were elder, rather divorced and living alone than FM ones. MF transsexuals preferred more often male partners than FM transsexuals, who had a preference for females. After SRS MF transsexuals showed more often a change in sexual orientation from female before SRS to male partners after SRS than FM who were mainly oriented toward women. The results indicated differences in the quality of life in relation to the treatment level. Pre-hormonal transsexuals reported less quality of life in total and in physical, psychological and social aspects than pre-SRS and post-SRS transsexuals. MF transsexuals reach higher psychological quality of life than FM persons. Considering sex roles MF transsexuals described themselves higher in femininity than FM, no other differences were found. Body image, especially gender-typed body parts for women and men were estimated as more important by FM than by MF transsexuals. FM transsexuals indicated also higher expectancies considering treatment, partnership, sexuality, body image and social acceptance. Satisfaction with the sex-reassignment-surgery, sexual activities and partnership in the post-SRS group was related to the complications after surgery.

P07

Report on the Activities of the Women's Health Care Clinic, Tokyo

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Under the influence of the spread of the Women's Health Care Medicine based on Gender Specific Medicine in Japan, we established the Women's Health Care Clinic in 2004. The object of our clinic is to improve patient outcome, ranging from young women to elderly ones suffering from a variety of physical and mental problems. Doctors (all women) have their own specialty and allot sufficient time for each patient. This paper examines our activity according to number of patients, age distribution and representative diagnosis of patients in 4 clinical sections out of 10 (Mental Care, Dermatology, Gynecology, Internal Medicine, Pediatrics, Kampo [Chinese herbal medicine], Psychology, Social Workers, Nursing, Rehabilimake). **Mental Care:** The average number of patients (NP) is 921 per month. The age distribution of patients (AD) was: 10s 6%, 20s 24%, 30s 26%, 40s 17%, 60s 7%, 70s 7%, 80s 1%. Representative diagnoses (RD) and case ratios (CR) are depression 42%, adjustment disorder 33%, eating disorder 20%, anxiety related disorder 14%, schizophrenia 3%. **Dermatology:** NP is 245 per month. AD was: 10s 7%, 20s 23%, 30s 23%, 40s 16%, 50s 11%, 60s 6%, 70s 7%, 80s 2%. Diagnoses and CR are eczema/dermatitis 55%, acne/alopecia etc 20%, skin infection 13%, urticaria/prurigo 6%, skin tumor/nevi 3%, burn/artifact 1%. **Gynecology:** NP is 143 per month. AD was 10's 8%, 20's 35%, 30's 21%, 40's 25%, 50's 12%. RD and CR are menopausal disorders 31%, dysmenorrhea 31%, ovarian dysfunction 22%, premenstrual syndrome 10%, contraception 3%, pregnancy 3%. **Internal medicine:** NP is 60 per month. AD was 10s 26%, 20s 34%, 30s 14%, 40s 10%, 50s 9%, 60s 7%. Diagnoses were autonomic imbalance, eating disorders, hypercholesterolemia, arrhythmia. These data show that patients' problems are mostly coming from mental disorders. We have here a wide age distribution from adolescence to post menopausal stages, and the diagnoses are overlapping. Another important point is that an even more intense cooperation between the different clinical sections is needed—not only as far as medical care is concerned but also in respect to psycho-social support, and a more specialized knowledge of gender medicine. We are planning to further build up the General Women's Medical Center based on these 5 concepts: Mental Health, Well-Aging, Reproductive Health, Supported Self-Care, and Gender Specific Medicine.

GENDER ASPECTS IN CLINICAL CARDIOLOGY

P08

Asymmetric Dimethylarginine (ADMA) as a Mediator of Inflammation and Coronary

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Background: Endothelial dysfunction is associated with a cardiovascular risk. Asymmetric dimethylarginine (ADMA), the endogenous NO synthase inhibitor, has been reported to contribute to increase risk of cardiovascular disease like the other established cardiovascular risk factors. This study was designed to examine the effect of ADMA on coronary endothelial function and to assess the relation of ADMA to the other parameters of metabolic disorder. **Methods:** The study population consisted of 32 postmenopausal women (70±6 yrs) and 27 age matched men (67±10 yrs) without significant coronary artery stenosis. Coronary vascular reactivity was examined by intra-coronary administration of papaverine, acetylcholine, and nitroglycerin using a Doppler guidewire. Plasma ADMA concentration was measured by HPLC-method. C-reactive protein (CRP), LDL-cholesterol, HDL-cholesterol, triglyceride, fasting blood sugar, HOMA-R, estradiol, follicular stimulating hormone, waist circumference, and systemic blood pressure were evaluated. **Results:** Plasma ADMA concentration was comparable between women and men (0.51±0.85 vs 0.50±0.56 nmol/ml). In a multivariate analysis, the percent change in coronary blood flow induced by acetylcholine highly and inversely correlated with plasma ADMA concentration ($P = 0.018$) in women, but not in men. Plasma ADMA concentrations positively correlated with CRP ($r = 0.54$; $P < 0.01$) and inversely correlated with HDL-cholesterol ($r = –0.42$; $P < 0.05$) in women in a monovariate analysis, which was not shown in men. Additionary, multivariate analysis showed that CRP was highly correlated with ADMA. **Conclusion:** These results suggest that ADMA is highly associated with endothelial dysfunction in the resistance coronary artery, which may be mediated by the expression of CRP in postmenopausal women.

GENDER AND EDUCATION

P09

Interdisciplinary Gender Aspects in the Medical Education at the Charité

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Introduction: Knowledge derived from gender specific research is more and more integrated into the medical education. In Germany this process is developing with a certain delay compared to other Anglo-Saxon or Scandinavian countries. At the Charité Berlin the GiM supports this development with its activities. **Material and Methods:** Topics like gender-specific learning objectives and their implementation in the own field were evaluated by means of a standardized questionnaire for medical educators at the Charité Berlin. These topics with gender aspects named by different fields of medicine were summarized in an interdisciplinary approach. **Results:** In total, 14 different interdisciplinary topics with gender aspects were identified. Endocrinological aspects of sex/gender for example were named by medical teachers in surgery, neurology, clinical pharmacology, radiology, physiology, pediatrics, immunology, dermatology, biochemistry and internal medicine. **Conclusion:** The implementation of these diverse topics into the medical education at the Charité Berlin has to be done by different strategies: Development of learning objectives with different fields of medicine, interdisciplinary lectures, elective course "Gendermedicine" and curricular development within the faculty. It is clear to us, that gender aspects during the medical education at the Charité Berlin can only be taught in the different fields of medicine as an integral part of modern diagnostic and therapeutic approach of future doc-

tors. Therefore, students as well as medical educators have to be sensitized to the importance of sex and gender in all fields of medicine.

FREE COMMUNICATION

P10

Questionnaire for Oral Health in Women

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Objectives: Recently, the concept of gender-specific medicine has become widespread. However, the information about gender difference in oral health and the cooperation between medical and dental professionals are not adequate. Therefore, questionnaire for oral health was taken in the 1st world congress on gender-specific medicine in Berlin. **Methods:** Questionnaires were taken from 50 participants of 1st world congress on gender-specific medicine in Berlin, 2006. These questionnaires requested information on oral findings and female hormone, oral complaints and cooperation with dentist. **Results:** 74% participants thought that, there are oral symptoms in relation to reduction of female hormone. 80% participants heard about oral complaints like oral dryness (54%), taste disorder (44%), jaw pain (42%) and pain of gum (34%). Among the participants 92% agreed with the importance of cooperation with dentist. **Discussion:** According to our survey in Japan, oral complaint was obtained in 79.4% clinics for women and 63.1% reported that the cooperation with dentist is necessary. However, at present, only 23.3% cooperated with dentist. This study showed similar result as Berlin. To improve this condition, a better concept of oral health in women and the cooperation between medical and dental professionals is required. **Conclusions:** Although 92% participants agreed the importance of cooperation with dentist, but it is not sufficient. Therefore, a better understanding and the cooperation between patient and medical and dental professional is necessary to improve the awareness of oral health in women.

P11

Sex Differences in Clinical Performance Among Undergraduate Medical Students in Clinical Clerkships

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The last 2 years of pregraduate training at Medical University of Vienna focuses on clinical skills. Each student keeps a personalized logbook containing predefined learning objectives with predefined skill levels. To motivate students upgrading on a higher skill level is possible and desired. Hojat et al. (2002) argues that female students in medical curricula achieve higher scores at empathy tests. Since empathy is the key component of a patient-doctor relationship it seems plausible that female students even gain higher clinical competences. Therefore we tested the hypothesis if female students achieve higher upgrade levels than their male associates. All 109 logbooks were collected and analysed. The reached skill levels of 141 learning objectives have been put to test. Female students had significantly more upgrade levels than male ones ($P = 0.018$). The downgrade levels didn't show sex-specific differences ($P = 0.878$) as well as grades at a knowledge test ($P = 0.294$). A regression analysis revealed, that students with better knowledge test grades had less missing levels in the logbook ($P = 0.012$). This study showed that female students do better perform at clinical clerkships regarding the upgrades of competences. Knowledge test grades and missing levels were independent from students' sex but grades did influence the motivation to fulfill the basic requirements of the logbook, ie to reach all predefined learning objectives at the predefined skill level. In return sex was a predictor of the motivation to gain more than the required level. But this did only apply for female students.

REFERENCE

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P12

Poster withdrawn

BASIC RESEARCH—WHAT'S DIFFERENT IN GENDER?

P13

How Does Emotional Being Correspond with the Heart Attack Risk and the Survival of Severe Cardiovascular Disease in Women and Men?

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Background: There is increasing evidence that chronic emotional conditions such as fear, isolation, hostility and depression are directly linked with heart attack risk and mortality (prognosis of mortality for people with severe cardiovascular disease). So far few studies focus on the impact of gender differences in the genesis of heart attack and its role in coping with cardiovascular disease. Beside survival and MACA the degree of stenosis represents an important prognostic factor, which can be identified through calcium scoring (Agaston Score). Calcium score is independent from all traditional risk factors and shows high predictive value. **Aim:** The purpose of this study is to explore if presurgical identification of emotional suffering such as depression, fear and isolation followed by psychological interventions directly after CABG can influence the survival, the Agaston Score and BNP levels. Differences in coping strategies in women and men are investigated. **Methods:** Patients are randomly selected in a experimental group (N = 30) and a control group (N = 30). Emotional being is examined with questionnaire SF36 (quality of life), Beck-Depression Inventory and H-Scales for ascertaining despair before and 12 months after CABG. Calcium scoring takes place before CABG, 3 months after and 12 months after CABG. Medical parameters such as triglycerides, blood pressure and BNP levels as well as BMI (body mass index) are taken before and 12 months after surgery. Experimental group participates in an intense stress management program, twice a week 1, 5 hours and a psychological support group 1 hour per week.

Stress management consists of modified yoga exercises for life threatening diseases, breathing techniques, progressive deep relaxation and imagery. Physiotherapy and nutrition counseling are offered for the experimental group. Group differences in the designated parameters—degree of stenosis, BNP-levels, hypertension, BMI, depression and Hazard rate—are investigated through *t* test for independent samples. **Expected Results:** It is expected that women and men undergoing an intensive lifestyle change program starting directly after bypass surgery show different strategies in coping with the disease and better prognostic values in the survival rate, less further cardiac events, significantly reduced arteriosclerosis, lower BNP levels and a better overall emotional well-being after 1 year.

GENDER AND AGING

P14

Gender Differences in Factors Associated with Nutrition

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Objectives: To evaluate gender differences in nutritional risk of older people admitted to an acute-care general medical department, and identify gender-specific risk factors. **Design:** Cross-sectional study. **Setting:** Internal Medicine Department in an acute care, university-affiliated hospital in southern Israel. **Subjects:** 204 cognitively intact patients aged 65 and over, admitted during a 12–month period to a general medical department. **Measures of Outcome:** Evaluation included demographic and clinical data consisting of the sum of medical conditions and of prescribed medications, evaluation of nutritional status, cognitive status, depression assessment and functional ability. Statistical analyses were conducted to evaluate the gender specific risk factors for under-nutrition. **Results:** 32.5% of the men (n = 40/123) and 48.1% of the women (n = 39/81) were at risk for under-nutrition. Country of birth and years since immigration were not related to nutritional status. Those at risk had a higher rate of depression, lower cognitive and physical ability, poorer reported health status and more diagnosed diseases, although they did not use more medications. Nutritional risk for men was associated with higher score for depression, longer hospitalization, and poor appetite. For women, nutritional risk was associated with lower functional status and more diagnosed diseases. Being a female increased the risk of under-nutrition by 3.3 fold. **Conclusion:** Risk of under-nutrition is prevalent among older in-patients and is gender-related. Female inpatients are at markedly increased risk for under-nutrition. The mechanism of the gender discrepancy in factors related to nutritional deterioration is complex and poorly understood.

P15

Age-Related Changes in Cardiovascular Drugs

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Introduction: More than one third of all prescriptions dispensed are for older people. Over 80% of older people uses at least 1 prescribed drug, 40-75% report using at least 1 non-prescribed drug, and 14–40% use herbal products. This polypharmacy, combined with multiple co-morbid conditions and age-related changes in drug disposition and response, place older individuals at an increased risk for adverse drug events (ADES). **Discussion:** Aging significantly alter drug pharmacokinetics and pharmacodynamics. Drug absorption can be alter by slow gastric motility, delayed empting time, in gastric PH and blood flow to GI–tract (40%). Drug distribution can be alter by change in body composition (lean body mass: fat ratio, C.O.P up to 50%, total body water & K), in liver mass, hepatic flow, enzymatic activity, plasma protein. Drug elimination can be reduce by in renal function. ADEs may present as nonspecific symptoms and signs of conditions that are already common in the older patient (incontinence, immobility, mental impairment,...) Any new symptom should be considered as a potential adverse drug event. Interactions involving "narrow therapeutic index" of cardiac drugs such as warfarin, amiodarone, verapamil and digoxin are another cause of ADEs in older adults. **Conclusions:** Aging is associated with a number of physiologic and pathophysiologic changes that impact upon pharmaceutical toxic effects, efficacy and dosing. So for drug therapy in this group "start low and go slow."

GENDER ASPECTS IN ENDOCRINOLOGY AND METABOLISM

P16

Gastroesophageal Reflux Disease

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Background: Symptomatic gastroesophageal reflux disease (GERD) is equally prevalent in females and males. Esophageal acid exposure and sensitivity to reflux have been shown to differ between genders. Our study aimed to assess gender differences in gastroesophageal reflux (GER) activity and symptom to reflux correlation using combined impedance- and pH-monitoring (MII-pH), a new technology for measurement of GER. **Patients and Methods:** MII-pH studies of antisecretory medication were performed in 309 GERD-patients (199 females, age 51.8±12.3 years) between 05/2005 and 12/2006. A catheter fitted with surface electrodes continuously measured pH at 5 cm and impedance at 3, 5, 7, 9, 15 and 17 cm above the manometrically located lower esophageal sphincter over 22.9±1.1 hours. Patients entered symptoms occurring during the measurements by pushing buttons on the data logger. **Results:** Acid exposure (% time with pH <4) was significantly higher in males than females (5.0% vs 2.65%; $P < 0.01$) as was the median number of reflux episodes detected by impedance (76 vs 36; $P < 0.001$). The median number of symptom events was almost equal (11 vs 12; n.s.). Positive symptom correlation was significantly more frequent in females than males ($P = 0.006$). An abnormal test result (pathologic acid exposure, increased number of refluxes or positive symptom correlation) was found in 72 (65%) male and 118 (59%) female patients (n.s.). **Conclusions:** Acid exposure and the number of reflux episodes are significantly higher in male than female patients. Sensitivity to reflux is significantly higher in females. Diagnosis of GERD omitting symptom to reflux correlation lacks diagnostic sensitivity, especially in female patients.

P17

Gender Differences in Therapy Satisfaction and Quality of Life at Type 1—Diabetes Under Functional Insulin Therapy

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Poster unavailable at time of publication.

GENDER ASPECTS IN PUBLIC HEALTH

P18

Men's Health, Consideration for the 21st Century

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A silent crisis is affecting the health and well being of men. Without immediate action, this crisis will continue to threaten their health and well being as well as that of their significant others and families, communities, and society. The life expectancy of men in the United States is about 6 years less than that of women. Males 15 to 19 years of age are 2.5 times more likely to die of any unintentional injury than women and 5 times more likely to die of homicide or suicide. Infant boys are more likely to die in their first year of life than infant girls. A lack of awareness, poor health education, a paucity of male-specific health programs, health care systems and programs that do not embrace men's particular needs in relation to services and access, and a paucity of male gender-specific health research contribute to the deteriorating state of men's health. Socioeconomic status is considered the strongest determinant of men's health. Men in all socioeconomic groups are considered disadvantaged as compared with women. In addition, other determinants of men's health are absence of work, marginality, poor work conditions, stress, personal health practices, impaired coping and emotional processing ability, cumulative adversity over a lifetime, and access to and use of health services. A men's health policy agenda should encompass the physical, mental, and psychosocial disparities men encounter based on race, social class, economics, sexual orientation, and male socialization process. **Conclusion:** Men's health is a holistic, comprehensive approach that addresses the physical, mental, emotional, social, and spiritual life experiences and health needs of men throughout their lifespan.

P19

Influence of Heavy Metals on Haematological Parameters and Possible Gender-Related Differences

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Background: There is a lack of information on gender related differences in health effects caused by heavy metals. The present study was performed to summarize the available and relevant findings on the relationships between gender, metal exposure (cadmium, lead mercury) and the haematological system. **Methods:** Electronic search in "PubMed" and "ScienceDirect" databases was applied. **Results:** Cadmium can cause severe anaemia in humans. There is some evidence that women are more affected by cadmium exposure than men: Itai-Itai disease was a "disease of women," cadmium concentrations are generally higher in women compared to men, and the risk for renal tubular damage is increased in women compared to men. Lead can also cause anaemia. Gender-related differences were found with regard to the influence of lead on erythrocytic parameters. The available data imply that mercury has no clinical relevant influence on haematological parameters. The interactions of sex hormones and heavy metals can explain gender-related alterations of blood parameters. **Conclusions:** It became evident that cadmium and lead have distinct effects on the haematological system comparing females and males. The inclusion of both genders is needed in further studies particularly with regard to cadmium and lead induced anaemia. Furthermore, the role of sex hormones in metal toxicity has to be clarified. There is also a lack of adequate animal models for lead toxicity and in general for the investigation of gender differences.

P20

Osteoporosis in Men

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Introduction: Among the disorders associated with aging, osteoporosis is recognized as an increasing public health problem. Osteoporosis mostly has been considered a women's disease. The risk for an osteoporotic fracture in men over the age of 50 is relatively high, 1 in 4. In addition, morbidity and mortality following a hip fracture in men are higher than for women. **Discussion:** There is no difference in BMD (Bone Mineral Density) or volumetric density at birth between boy and girl. A gender difference appears during puberty as a consequence of a more prolonged grow the period in boy. The main difference between osteoporosis in men and women, is that fractures in men occur about 10 years later than in women, and men are not as prone to long bone fractures. Hormonal changes in men do influence the development of osteoporosis, as testosterone levels diminish with age. Common risk factors for the development of osteoporosis in men include: moderate to high alcohol intake, tobacco use, low calcium intake, being of small stature, heredity, low body mass index (BMI), age, sedentary lifestyle, testosterone deficiency, and long-term glucocorticoid therapy. Laboratory tests are directed at excluding secondary causes, identifying contributory factors, and assessing the rate of bone turnover. In addition to medical history and physical examination, Particular attention should be paid to detecting height loss and signs suggestive of disease causing osteoporosis. The goal of drug therapy is to increase bone mineral mass and to reduce fracture incidence. Hypogonadism is found in up to 15% to 20% of men with osteoporosis. Testosterone replacement can increase bone mass. Calcium and vitamin D supplements should be included in management of osteoporosis men. Fluoride salts induce a considerable increase of BMD mainly in the axial skeleton without positively affecting appendicular bone. Biophosphonates are now the first choice for the treatment of postmenopausal osteoporosis. The role of

nursing for preventing osteoporosis in men focuses on educating them about the importance of an adequate intake of calcium and vitamin D, exercise, and associated risk factors. In our descriptive nursing study of 150 men, 65 years of age and older, approximately 75% of the men scored poorly on knowledge tests about osteoporosis and most did not perceive themselves as being susceptible to developing osteoporosis. Only one sixth of the men in this study engaged in weight-bearing exercises twice a week. Finally, they are usually less interested in their health problems and adhere less strictly to a treatment or to a diet. **Conclusion:** It is recognized widely that osteoporosis is becoming a significant problem in men. The myths that this disorder is just a feminist issue can be ignored no longer. Nurses are in a prime position to help men identify and analyze their risks and help them select appropriate prevention and screening strategies to improve their knowledge and quality of life.

P21

Choreographies of Immunological Textbooks Uncover Gender Clichés in Medical Students

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Objectives: Based on medical anthropology (Martin 1994), gendered microbiology (Weasel 2002) and immunophilosophy (Tauber 2000) we investigated gender clichés that medical students use when they think about immune interactions. **Subjects:** We compared 22 groups of junior medical students (n = 130, 73 male, 57 female) on a group and individual basis. **Methods:** Students transferred textbook chapters, dealing with the relation of the immune system to invaders, into videotaped theatrical choreographies. The dependency of the immune components performed on the student actors biological sex, the style and temporal course of interaction, the relational spacing (Löw 2000) and the requisites used were analysed. Differences were calculated with Students *t* test, $P < 0.05$. **Results:** Females performed more B-cells, directed by male T-cells. Antibodies were all performed by females after a 'birth giving' act and females performed more macrophages using rubbish collecting acts. There were no sex differences when acting the other cells and the antigens. Female groups acted and waited longer to collect more communication signals using additional requisites for making the meaning of another person as an antigen. Males acted more straightforwardly to eliminate the antigen. **Conclusion:** Transference of textbooks into a performative act may help to discover hierarchical gender clichés existing in medical students' thinking about themselves and about the immune system. This technique also highlights the connection between female spacing and communication and contexted and cognitive immunology as was recently shown by the theoretical literature.

P22

Immunology Comic Movies Promote Gender Prejudices

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Objective: To enhance understanding for children, directors of immunology comic movies use anthropomorphization of immune cells as technique. We analysed the extensively screened 'Once upon a time life...The immune system' (Albert Barille, France, 1986) in search for gender prejudices ensued from this technique. Subjects investigated were the 'actors' (n = 135), who represent components of the immune system and invaders. **Methods:** Determination of sex characteristics (primary with sexual organs, secondary with breasts, abdominal, facial and chest hair, muscle mass, voice, physical strength, fat allocation, etc. and tertiary with clothing, hair cut, behaviour etc). The times the actors appear and gendered spacing (Löw 2000) were determined. Calculations with Students' *t* test, $P < 0.05$. **Results:** Primary sex characteristics are not found, but 70 of the 135 actors have secondary sex characteristics: male/female (35/25), T Lymphocytes (13/8), B Lymphocytes (17/11), macrophages (2/0), T-helpers (0/2), Nk cells (0/2), basophiles (0/2). Individual antibodies (n = 3), erythrocytes (n = 10) are sexless; bacteria (n = 21) and viruses (n = 35) have no human shape, but show male tertiary characterics. The times (seconds) immune cells appear dependent on sex: male/female (465/318), T cells (209/18*), T helpers (0/9*), B cells (235/268), macrophages (11/0*), Nk cells (10/14), basophiles (0/9*). T, B Lymphocytes show expansive spacing, T-helpers, macrophages, Nk cells and basophils reduced spacing. **Conclusion:** Barille's immune system is dominated by anthropomorphic T cells, which show male spacing and male secondary sex characteristics. Intruders, although zoomorphic, show tertiary male characteristics. Both are surrounded by more passive female co-actors. We find this movie to promote gender prejudices.

P23

Gender-Specific Differences in Mercury Toxicokinetics

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Background: The health effects of toxic metal exposure can differ between women and men. Nevertheless, gender sensitive toxicology is a highly neglected research area. The heavy metal mercury is an important environmental pollutant. Target organs of mercury toxicity are the central nervous system and the kidneys. Chronic exposure can impair the neurological development of the fetus. **Method:** Electronic search in 'PubMed' and 'ScienceDirect' databases was applied to review the available literature on gender specific differences in mercury toxicology. Focus was on antioxidant enzymes and transport systems involved in detoxification processes in the liver, the kidneys and the brain. **Results and Discussion:** The majority of studies have used animal models. After mercury administration females showed: (1) higher plasma protein levels, (2) increased activity of antioxidant enzymes, and (3) higher expression of biliary transport systems compared to males. Males displayed however higher expression of kidney transporters. Females accumulated mercury to greater extent in the body except for the kidneys, where mercury levels were higher in males. Gender specific differences in mercury toxicokinetics can be partly explained by the involvement of steroid hormones in metal regulation mechanisms. Further studies are necessary to assess the relevance of the findings of animal studies to humans particularly with regard to the role of sex hormones in mercury metabolism of women and men.

NEW TECHNOLOGY AND INTERVENTIONS

P24

Acute Rejection in Renal Transplants Is Different Between Genders

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Acute rejection is a common problem after renal transplantation, especially during the first 12 months. Among others, frequency of rejection is depending on racial group, HLA-matching and reactive anti-HLA-antibodies. Kidneys are transplanted without notice of gender differences. In the years 2004 to 2006, in our transplant centre, 564 patients got a renal transplant. 427 of them were be analyzed retrospectively. These patients were at the age of 18 years and older and had a transplant history of at least 3 months. In 16% of transplantations a living-donor organ was available. 57% of recipients were male (n = 242), 51% of donors were male (n = 218). 51% of recipients received a sex-matched organ. Rejection rate was 38% within the first 12 months after renal transplantation. There was no difference in rejection rate between living-donor and cadaver transplant organ (37 vs 38%). Patients with a donor organ from the same sex had no significant difference in rejection frequency compared to them with a donor organ from the opposite sex. In living-donor organ transplantation patients with a male donor organ got more often a rejection episode than those with a female ($P < 0.05$). Rejection rate in patients with a female cadaveric kidney transplant was significantly higher than in patients with a male organ ($P < 0.05$). Transplantation of kidney organs without sex-matching is usually done. Living-donor organs from men and cadaveric donor organs from women cause acute graft rejection often. If there is necessity to adjust immunosuppression has to be investigated.

SELF-DIRECTED LEARNING IN MEDICAL EDUCATION

P25

Do Male Students Prefer Different Instructional Methods Than Women?

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Higher education, especially medical education, is facing a number of problems and changes: Beside cognitive objectives there is a big need for a broader range of student-competences, such as attitudes, skills and behaviour (cf. OECD, 2004). Since different learning outcomes require different educational methods, actual trends in educational systems shift from a teacher-centred to a student-centred approach. By fostering this approach one expects a general improvement of student's learning competence and hence a preparation for lifelong learning. This shift is closely related with the emphasis on "self-directed learning" or "self-regulated learning" (Boekaerts, 1999). Considering different instructional methods leading to different student competencies, one may ask if both genders prefer distinct educational strategies equally or is there is a gender difference according self-regulation in academic learning. If yes, do male students prefer other instructional methods than women? If yes again, what are the underlying mechanism for that? In this study the author investigates possible sex differences with 2 distinct instructional methods common in medical education, ie, case-based-seminars versus problem-based-seminars. The last mentioned is typically in promoting active and self-regulated-learning, while case-based seminars are highly structured by medical teachers with little demand on student's self-regulation. Data were collected at the undergraduate medical curriculum at Vienna's Medical School (2nd, 3rd and 4th year students; total N = 729). The results will be discussed both in the light of socio-cultural perspectives and by means of biological—in the sense of evolutionary—interpretation.